# 3.0 ALTERNATIVES AND CUMULATIVE PROJECTS

## 3.1 FACTORS USED IN SELECTION OF ALTERNATIVES

### 3.1.1 Alternatives Development and Screening Process

One of the most important aspects of the environmental review process is the identification and assessment of reasonable alternatives that have the potential for avoiding or minimizing the impacts of a proposed Project. In addition to mandating consideration of the No Project Alternative, the State CEQA Guidelines (section 15126.6(d)) emphasize the selection of a reasonable range of feasible alternatives and adequate assessment of these alternatives to allow for a comparative analysis for consideration by decision-makers.

The CEQA requires consideration of a range of reasonable alternatives to the project or project location that: (1) could feasibly attain most of the basic project objectives; and (2) would avoid or substantially lessen any of the significant impacts of the proposed Project. An alternative cannot be eliminated simply because it is more costly or if it could impede the attainment of all project objectives to some degree. However, the State CEQA Guidelines declare that an EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote or speculative. The CEQA requires that an EIR include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed Project.

This screening analysis does not focus on relative economic factors of the alternatives (as long as they are feasible) since the State CEQA Guidelines require consideration of alternatives capable of eliminating or reducing significant environmental effects even though they may "impede to some degree the attainment of project objectives or would be more costly." Likewise, the question of market demand or project need is not considered.

### 3.1.2 Alternatives Screening Methodology

Alternatives to the proposed Project were selected based on the input from Chevron U.S.A (Applicant or Chevron), the EIR study team, and the public and local jurisdictions during the EIR scoping hearings. The alternatives screening process consisted of three steps:

**Step 1:** Define the alternatives to allow comparative evaluation.

**Step 2:** Evaluate each alternative in consideration of one of more of the following criteria:

- The extent to which the alternative would accomplish most of the basic goals and objectives of the Project;
- The extent to which the alternative would avoid or lessen one or more of the identified significant environmental effects of the Project;
- The potential feasibility of the alternative, taking into account site suitability, economic viability, availability of infrastructure, General Plan consistency, and consistency with other applicable plans and regulatory limitations; and
- The requirement of the State CEQA Guidelines to consider a "no project" alternative and to identify, under specific criteria, an "environmentally superior" alternative in addition to the "no project" alternative (State CEQA Guidelines, section 15126.6(e)).

**Step 3:** Determine suitability of the proposed alternative for full analysis in the EIR. If the alternative is unsuitable, eliminate it, with appropriate justification, from further consideration.

Feasible alternatives that did not clearly offer the potential to reduce significant environmental impacts and infeasible alternatives were removed from further analysis. In the final phase of the screening analysis, the environmental advantages and disadvantages of the remaining alternatives were carefully weighed with respect to potential for overall environmental advantage, technical feasibility, and consistency with project and public objectives.

If an alternative clearly does not provide any environmental advantages as compared to the proposed Project, it is eliminated from further consideration. At the screening stage, it is not possible to evaluate potential impacts of the alternatives or the proposed Project with absolute certainty. However, it is possible to identify elements of the proposed Project that are likely to be the sources of impact. A preliminary assessment of potential significant effects of the proposed Project resulted in identification of the following impacts:

- Operational Safety/Risk of Accidents;
- Water Quality;
- Biological Resources;
- Commercial and Sports Fisheries;
- Land Use/Recreation (oil spill impacts);
- Air Quality;
- Noise;
- Vehicular and Rail Transportation;
- Visual Resources (oil spill impacts);
- Geological Resources/Structural Integrity of Wharf; and
- Environmental Justice.

For the screening analysis, the technical and regulatory feasibility of various potential alternatives was assessed at a general level. Specific feasibility analyses are not needed for this purpose. The assessment of feasibility was directed toward reverse reason, that is, an attempt was made to identify anything about the alternative that would be infeasible on technical or regulatory grounds. The CEQA does not require elimination of a potential alternative based on cost of construction and operation/ maintenance. For the proposed Project, those issues relate to:

- Engineering feasibility and feasibility of implementation;
- Reasonableness when compared to other alternatives under consideration; and
- Adequacy of the alternative to meet the Project purpose and need.

### 3.1.3 Summary of Screening Results

Potential alternatives were reviewed against the above criteria. A number of alternatives were eliminated based on their inability to meet the basic project objective. Those alternatives that were found to be technically feasible and consistent with the Applicant's objectives were reviewed to determine if the alternative had the potential to reduce the environmental impacts of the proposed Project.

Table 3.1-1 represents the evaluation and selection of potential alternatives to be addressed in the EIR. Those listed in the first column have been eliminated from further consideration (see rationale in Section 3.2, Alternatives Eliminated from Full Consideration), and those in the second column are described in Section 3.3, Alternatives Evaluated in the EIR, and evaluated in Section 4.0, Existing Environment and Impact Analysis.

**Table 3.1-1**
**Summary of Alternative Screening Results**

| Alternatives Eliminated from Consideration | Alternatives Evaluated in this EIR |
|---|---|
| Single Facility Consolidation in Bay | No Project |
| Deep Water Port Consolidation | Full Throughput Via Pipeline Alternative |
| Consolidation with the Richmond Marine- Link Pipeline System | Conceptual Consolidation Terminal Alternative |
| Limitations of Terminal Use | |
| Lease Options | |

It should be noted that the EIR analysis included alternatives that potentially would result in greater environmental impacts to some issue areas, or would transfer a similar level of environmental impacts to other existing marine terminal facilities, as compared with the proposed Project. These alternatives have been included for analysis to demonstrate that, regardless of lease renewal, similar levels of impacts may occur in meeting the refining needs of the Bay area region by increased activities at other Bay area marine terminals and associated refineries.

## 3.2 ALTERNATIVES ELIMINATED FROM FULL EVALUATION

A screening process was used in the selection of alternatives examined in the EIR. All alternatives were initially evaluated from a feasibility perspective. Several alternatives were considered to be infeasible and were eliminated from further evaluation in this EIR. These alternatives are discussed below.

### 3.2.1 Single Facility Consolidation in Bay

The concept of consolidation of Chevron and other Bay Area marine terminals into one large terminal within the Bay was briefly examined. The concept of a single port in the Bay has been examined as early as the 1960s, when the idea of a "Super Port" in deep water near Alcatraz was introduced (personal communication, Steve McAdams, BCDC, 1993). The concept would provide a major docking platform with pipeline branches to strategic terminals throughout the Bay. One of the thoughts behind this concept was to be able to provide the access for deep draft vessels to offload crude to Bay Area refineries, while at the same time attempting to minimize vessel travel through the Bay and minimize environmental risk. This plan was dropped from later BCDC plans.

The use of presently existing facilities was also examined. The most likely candidate for Bay Area consolidation is actually the Long Wharf, given its central location in the Bay and its size. However, as it is already operating at capacity, it would be virtually impossible to modify the wharf and to provide the pipeline infrastructure that would be required to transform this wharf into a facility that could accommodate all Bay Area tanker traffic.

Consideration was also given to the difficult logistics that would be involved in a single facility consolidation. This would require not only procurement of agreements with all existing terminal operators, but also the planning and construction of an elaborate pipeline infrastructure system. Because of its complexity and a formidable time frame for implementation, this concept was eliminated from further consideration in this EIR.

### 3.2.2 Deep Water Port Consolidation

The concept of an offshore port located outside of the Bay was also considered. This would involve development of a port several miles off the California coastline to minimize the potential for spills that would effect shorelines, and to reduce the number of tankers entering U.S. ports and related risks of environmental damage. One such

offshore terminal, the Louisiana Offshore Oil Port (LOOP), operates in deep water 18 miles offshore. This facility became operational in 1982 (U.S. Department of Interior 1990). The port consists of three single-point mooring buoys used for the offloading of crude tankers and a marine terminal consisting of a two-level pumping platform and a three-level control platform.

While such concepts appear to have potential to reduce nearshore tanker accidents, significant questions remain unknown as to the environmental and economic benefits of these facilities offshore the coast of California. As such, this concept was eliminated from further analysis as an alternative in this EIR.

### 3.2.3 Consolidation with the Richmond Marine-Link Pipeline System

The draft EIR/EIS for the San Francisco to Stockton Phase III (John F. Baldwin) Navigation Channel Project (U.S. Army Corps of Engineers 1997) presented the Richmond Marine-Link Pipeline System (RMLPS) as an alternative to channel deepening and continued dredging within San Pablo Bay and Carquinez Strait. This RMLPS proposal was withdrawn by its proponent, Wickland Pipelines LLC in February 1999 due to a lack of user support.

The RMLPS would have been a consolidated facility whereby petroleum would be offloaded at a central facility and delivered to refineries, storage terminals, and other facilities in the east San Francisco Bay Area via smaller marine vessels or pipeline. The pipeline systems were intended to provide flexibility in the areas of cargo handling and transportation cost control, reduce vessel-to-vessel lightering of crude oil at Anchorage 9, and reduce tanker traffic in the greater San Francisco Bay and Carquinez Strait. This would have been possible because the pipeline system would have allowed tankers of up to 300,000 DWT to proceed at high tide (when ships drafting 48 to 49 feet can pass through the 45-foot-deep channel to Richmond) to the new RMLPS marine terminal and off-load in the natural -53 to -55 foot depths of the berth at a new deep-water wharf.

The west end of the pipeline would have commenced within the Richmond City limits at a new deep-water wharf to be constructed at Point Molate, and would have extended from the wharf to the Richmond shoreline. The pipeline would have connected to a new tank farm on the San Pablo peninsula, either at Point San Pablo or Point Orient, and continued in northerly then easterly directions along the shorelines of San Pablo Bay and Carquinez Strait, terminating in Pittsburgh at the existing PG&E power plant tank farm.

The RMLPS, as planned, would not have the capacity to deliver the present daily quantity of crude (245,000 bbls of crude per day) to the Chevron Richmond Refinery (Refinery), in addition to anticipated deliveries throughout San Pablo and Carquinez Strait, estimated to have been between 189,000 and 243,000 bbls per day. Conversely, the Long Wharf, which is operating at full capacity, would not have the capacity to handle additional deliveries and would be limited in its ability to handle additional vessels even if additional piping and pumping were installed. Thus, total consolidation

of the RMLPS and the Long Wharf at either the RMLPS or the Long Wharf was not considered to be a viable option and was eliminated from further consideration in this EIR.

Prior to the RMLPS withdrawal, consideration was being given to reduced use of the Long Wharf with partial replacement of throughput from the RMLPS. Reduced use of the Long Wharf would decrease the risk of spills, but not necessarily proportionately to the decrease in vessels calls or throughput. The wharf and pipelines would still present a continuous potential for a pipeline spill release. In addition, the method used to replace the throughput (import or export) could shift the risk to the RMLPS.

The option of partial consolidation was not likely to result in a reduction in number of ships directly related to the Chevron facility through the area, since ships would go either to the RMLPS or the Long Wharf. Also, because the RMLPS and the Long Wharf are proximate to each other, there would not be substantial differences relative to distances traveled.

Also, with both the RMLPS and Long Wharf operating proximate to each other, consideration would need to have been given regarding the potential for increased risk in vessel collisions.

### 3.2.4 Limitations of Terminal Use

Options examined under this scenario include limitations on Long Wharf use. These include crude/product receipt only, product shipment only, and emergency use only. Crude/product receipt and product shipment both assume retention of existing capacities.

Annually, about 70 to 75 percent of Long Wharf throughput is receipts. Theoretically, only receipt of crude/product through the Long Wharf would decrease the risk at the Long Wharf by approximately 25 to 30 percent. Conversely, only export of product would decrease risk by 70 to 75 percent. Reduced use of the Long Wharf would decrease the risk of spills, but not necessarily proportionately to the decrease in vessels calls or throughput. The wharf and pipelines would still present a continuous potential for a pipeline spill release. In addition, the method used to replace the throughput (deliveries or shipments) could shift the risk to another terminal or on-land alternative (trucks or pipelines).

For consideration of emergency use only, the Long Wharf would be retained with all equipment operations. Under emergency conditions, use of the Long Wharf would be restricted for use by any tanker or barge that would require unloading of its contents. Due to the location of the Long Wharf, a distressed vessel on its way to northern San Pablo Bay or Carquinez Strait could unload, reducing risk of spilling contents into the Bay. While this alternative would decrease the overall risk at the Long Wharf, it could quite possibly increase the risk over present conditions on a per vessel call basis.

It would also be difficult to maintain the existing level of training and experience of personnel now working at the Long Wharf, as well as raise questions on who would maintain and operate such a facility.

These options were eliminated as infeasible. It is unlikely that the Long Wharf would be able to operate efficiently or economically, nor would there be any environmental benefit gained by limiting usage to import or export only, or only to emergency use.

### 3.2.5 Alternative Lease Options

#### Alternative Lease Option 1

Two alternative lease options were considered. The first would involve granting of a short-term lease to Chevron, in the event that Chevron would phase out its operation of the Long Wharf. If the Long Wharf is not granted a new lease, then limitations would occur under the conditions imposed on Chevron under a phase out lease. The alternatives considered in this document are designed to focus on avoiding or substantially lessening any significant effects of the project, but to still meet project objectives that allows the Refinery to continue to operate. With a phase out of operations of the Long Wharf, Chevron would be required to find another source of crude receipt and product export to keep the Refinery operating. This is similar to the No Project Alternative, except that Chevron would be granted a specific phase out period and conditions under a lease, rather than having no lease as under the No Project discussion. The terms under which the CSLC would implement a phase out of operations would need to be specifically developed for this facility, as such, discussion of a short-term lease is not considered further in this document.

#### Alternative Lease Option 2

The second consideration would involve granting a lease to another marine operator, if Chevron and the CSLC would be unable to agree on terms of a new lease. However, problems would arise with regard to ownership of the terminal and infrastructure, which are Chevron's. Also, the problem of logistics of transfer/transport of crude and product through the Chevron Refinery to another refinery would result. Finally, CSLC leases reserve the right for CSLC to have their property returned in original condition or with the improvements intact and a new lease between the new operator and CSLC would be required. This alternative would result in the same impacts as the proposed Project with additional impacts to transport throughput by pipeline to another Refinery. This alternative was eliminated from further consideration.

## 3.3 ALTERNATIVES EVALUATED IN THE EIR

### 3.3.1 No Project Alternative

Under the No Project Alternative, Chevron's lease would not be renewed and the existing Long Wharf would be subsequently decommissioned with its components

abandoned in place, removed, or a combination thereof. The decommissioning of the Long Wharf would be governed by an Abandonment and Restoration Plan. Decommissioning of the Long Wharf would include, but not be limited to, the following actions:

- Magnetic survey of seafloor;
- Abandon and/or remove all Long Wharf components above and below the seafloor, including pipelines;
- Site Clean-up Verification using such means as side scan sonar, remotely operated vehicles and video; and
- Phase 1 Site Assessment (and more detailed Assessment if needed) will be conducted. Based on the results, a Site Closure Plan will be prepared for approval by appropriate agencies.

Under the No Project Alternative, an alternative means of crude oil/product transportation would need to be in place prior to decommissioning of the Long Wharf, or the operation of the Chevron Refinery would cease production, at least temporarily. It is more likely, however, that under the No Project Alternative, Chevron would pursue alternative means of traditional crude oil transportation such as a pipeline transportation or use of a different marine terminal. Accordingly, the potential environmental impacts of these alternatives are described and analyzed in this EIR. For the purposes of this EIR, it has been assumed that the No Project Alternative would result in a decommissioning schedule that would consider implementation of one of the described transportation alternatives. Any future crude oil or product transportation alternative would be the subject of a subsequent application to the CSLC and other agencies having jurisdiction depending on the proposed alternative.

Decommissioning, abandonment, and/or deconstruction of the wharf, or any other proposed reuse of the wharf would require a separate CEQA review. Since details associated with decommissioning, abandonment, and/or deconstruction would need to be developed if they were to occur, for the purposes of this EIR, impacts are discussed only briefly.

### 3.3.2 Full Throughput Via Pipeline Alternative

The Long Wharf is part of the greater Bay Area refining industry. With no Long Wharf, Chevron would have to make up the difference in Long Wharf throughput capacity via use of pipelines and other wharves to supply the refinery.

The Refinery is not currently configured to process crude oil from the California Central Valley. The Refinery used to receive crude oil by pipeline from the Central Valley, but this stopped in 1991 and Chevron has since dismantled the facilities used to process this crude. The Refinery delivers some products through common-carrier pipelines

owned and operated by Kinder-Morgan Energy Service (formerly Santa Fe Pipeline). These include SP-1, which routes products to markets in northern California and northern Nevada; SP-2, which routes products to markets along the San Francisco Peninsula and South Bay area; and SP-3 which routes products to the Oakland and San Francisco airports. The Refinery also delivers products via the Bay Area Pipeline (BAPL), owned and operated by Chevron Pipeline Company. The BAPL pipeline is a Chevron proprietary pipeline used to deliver products to Chevron Marketing terminals in the Avon, Sacramento, San Jose, and Tracy areas.

This alternative assumes that with no Long Wharf to receive crude or transport product, pipelines would be used. Crude received could be a combination of Central Valley, Alaskan and foreign crude received through arrangements with other Bay Area terminals and piped to the Refinery. This combination would be considered necessary because the availability of Central Valley crude is declining.

This concept of using pipelines to replace the Long Wharf is carried forward in a general manner for analysis. While viable from an environmental analysis perspective, other considerations include the lengthy and complex regulatory processes that would be required for pipelines to be installed to replace the Long Wharf. Some other constraints that must be considered include the availability of Central Valley crude, and whether pipeline easements could be obtained to the Central Valley as well as to other sources in the Bay Area.

Construction of new pipelines and facilities would be required to equal the current daily receipt of crude processed through the Refinery (245,000 bbls). The Refinery would be required to reconfigure process systems to handle Central Valley crude. Shipment of product also would require arrangements with other area terminals as well as the pipeline connections.

### 3.3.3 Conceptual Consolidation Terminal Alternative

This alternative assumes that a number of refinery operators would participate in a consolidated terminal. This hypothetical action could occur within the next 10 to 30 years (during the term of the proposed Long Wharf lease). This concept would be similar to the Richmond Marine-Link Pipeline System (RMLPS) that was presented in Section 3.2.3, Consolidation with the Richmond Marine-Link Pipeline System. However, this alternative assumes that, within the next 10 to 30 years, changes in the economic, political, and environmental drivers would make a consolidation terminal a viable and feasible option in meeting increased demand in the Bay area. Future drivers may include the rise of vessel traffic safety risk from continued increases in all Bay area marine traffic, costs associated with maintenance dredging of vessel transit lanes for deep draft vessels, increases in vessel to vessel lightering, increased refining capacities at existing Bay area refineries, and political or regulatory changes.

The consolidated facility would be located in Contra Costa County, north of the Long Wharf, or in another Bay site where natural water depths would accommodate such a

facility without new dredging. The facility would be conceptually planned to accommodate crude oil deliveries of between 189,000 to 243,000 bpd to reduce vessel-to-vessel lightering of crude oil at Anchorage No. 9, and to reduce tanker traffic in the greater San Francisco Bay, especially San Pablo Bay and the Carquinez Strait. The facility would allow petroleum to be offloaded at a central facility and delivered to refineries, storage terminals, and other facilities in the east San Francisco Bay Area via smaller marine vessels or pipelines. A land-based pipeline system would provide linkages to area refineries, including the Chevron Refinery.

Given that the consolidation terminal would be able to accommodate up to 243,000 bpd, it would not have the capacity to deliver the present daily quantity of crude (245,000 bbls) to the Chevron Richmond Refinery and the other refineries in San Pablo Bay and the Carquinez Strait. In addition, the Long Wharf operating at full capacity would not be able to handle additional deliveries, and would be limited in its ability to handle additional vessels, even if additional piping and pumping were installed. Therefore, total consolidation of the consolidated terminal and the Long Wharf at either the consolidated terminal or the Long Wharf was not considered viable, and was eliminated from further consideration in this EIR.

Thus, in a worst-case analysis, both facilities would be operational. For this analysis, the Long Wharf throughput would be reduced to approximately 50 percent of existing throughput, with the balance supplied from the consolidated terminal facility with delivery via pipeline to the Long Wharf. Similarly, product export would be shared between the two marine terminals.

## 3.4 CUMULATIVE PROJECTS

This discussion provides a listing and map identifying other related future projects near the location of the proposed Project and Alternatives.

Section 15130 of the State CEQA Guidelines requires that an EIR discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as identified in section 15065(c). Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but shall briefly describe its basis for concluding that the incremental effect is not cumulatively considerable. As defined in section 15355 of the State CEQA Guidelines, a cumulative impact consists of an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. An EIR should not discuss impacts that do not result in part from the project evaluated in the EIR.

### 3.4.1 Boundary of Cumulative Projects Study Area

The study area for the proposed Project includes the San Francisco – San Pablo Bay region (the Bay or Bay Area), the Carquinez Strait, and the outer coast of California (refer to Section 1.2.2, Study Area Boundary). Because the geographical region that could be affected by the proposed Project is the same, the cumulative projects study area coincides with the Project study area, and is comprised of the following components presented in Section 3.4.2, Description of Cumulative Projects:

- Foreseeable projects in the general vicinity of the Long Wharf; and

- Projects in or near the shipping lanes, utilized by other carriers, not only for petroleum but for transport of other goods and materials within the Carquinez Strait, San Pablo Bay, and San Francisco Bay.

Most vessel traffic in the study area is not the responsibility of Chevron. However, these vessels could have an accidental spill/release of oil in the Bay or outer coast enroute to the Long Wharf. A general overview of cumulative impacts is presented in Section 4.0, Existing Environment and Impact Analysis, within each environmental discipline. Cumulative impacts on the coast area from San Francisco Bay north to the Oregon/California border and south to Santa Cruz were previously addressed in the Shore Terminals, LLC, Lease Consideration EIR (Chambers Group 2004), and for consideration of a new lease for the Unocal (now ConocoPhillips) Marine Terminal (Chambers Group 1994). Cumulative impacts relevant to tanker traffic on the shipping lanes from San Francisco Bay south to southern California were previously addressed in the GTC Gaviota Marine Terminal Project Final Supplemental EIR/EIS (Aspen Environmental Group 1992). The identification and analyses of cumulative outer coast impacts possible from outer coast shipping discussed by these documents, though dated, are still relevant, and, in the discussion of impacts associated with the Long Wharf, comparable and current for this analysis. A description of the regional characteristics of transport in the Bay Area and outer coast is presented in Section 3.4.3, Regional Characteristics of Crude/Product in Bay and Along Coastal Shipping Lanes off Northern California.

### 3.4.2 Description of Cumulative Projects

**Projects in Vicinity**

*LTMS Program*

The LTMS program is designed to provide a regional plan for the disposal of dredged material from the San Francisco Bay over the next 50 years. The LTMS program began in January 1990 as a federal/state partnership among the four agencies that have regulatory authority for dredged material in the San Francisco Bay, and include the Corps, the U.S. Environmental Protection Agency (EPA) Region IX, the San Francisco Bay Regional Water Quality Board (SF-RWQCB), and the San Francisco Bay BCDC.

These four lead agencies share responsibility for managing the various components of the LTMS. The LTMS Final EIS/EIR indicates that approximately 6 million cubic yards (mcy) of sediments must be dredged and disposed each year from shipping channels and related navigational facilities in the Bay Area. The estimated total volume of dredged material that would require disposal over the 50-year LTMS planning horizon is approximately 300 mcy. The policy alternatives involve different volumes of dredged sediment being disposed at in-Bay, ocean, and upland/wetland reuse sites. Under current regulatory conditions, 80 percent or more of the dredged material would continue to be disposed at designated sites in the Bay, with only a small percentage of material disposed outside the estuary at the new offshore ocean site or used in "beneficial reuse" applications, such as wetlands restoration.

*San Francisco Bay to Stockton Phase III - John F. Baldwin Navigation Channel Project*

This project is a 65-mile long deep draft navigation channel, extending from the San Francisco Bay entrance to the Port of Stockton, through San Francisco, Marin, Contra Costa, Solano, Sacramento, and San Joaquin Counties in California. The Port of Stockton, supported by the Contra Costa County Water Agency, has requested that the COE perform an assessment of the feasibility of deepening the existing 35-foot channel.

The COE and Port of Stockton executed a Pre-construction, Engineering and Design (PED) Agreement in July 2002, initiating the first phase of channel deepening, which focuses on potential salt water intrusion issues and reviewing project economics. As a result of this evaluation, the Port and the COE found sufficient evidence to support the continuation of the study and the initiation of a General Reevaluation Report (GRR), and executed a revised PED Agreement in April 2004. The Central Valley Regional Water Quality Control Board has placed severe restrictions on all dredging activities occurring within the Delta – restrictions which, if unchanged, will make the project all but impossible to construct, as well as perform operations and maintenance on the completed 35' project. In an attempt to counter these restrictions, the COE is calling on its nation-wide expertise in dredging and water quality to convince the Board that dredging can be beneficial to both the nation's economy and the environment, while not causing detrimental impacts to the water quality of the Delta.

The COE goals currently are, contingent on funds, to continue preparation of the GRR and Supplemental Environmental Impact Statement (EIS/R), which are being prepared to review the existing designs, revise the project economics, reassess the dredge disposal sites, and update the environmental documentation (U.S. Army Corps of Engineers Website, San Francisco District).

The purpose of the channel deepening is to provide improved direct access of large oil tankers to the petroleum refineries and terminals adjacent to the Carquinez Strait. This would reduce vessel-to-vessel lightering of crude oil at Anchorage No. 9 and reduce tanker traffic in San Francisco Bay. Once dredging and disposal for the channel-deepening project begins, the project should take approximately 30 months to complete.

*Ferry Point Pier and Terminal Projects*

The Miller-Knox Regional Shoreline Land Use-Development Plan (LUDP) was amended in October 1995 to include the Ferry Point Pier and Terminal projects. The Miller-Knox Regional Shoreline is located off of Point Richmond and just north of the north end of the Richmond Harbor Channel entrance. The Ferry Point parcels, including the Ferry Point Terminus site and the Ferry Point Pier, have recently been given zoning and land use designations appropriate for their proposed uses. The Ferry Point parcels added a total of 28 acres to the Miller-Knox Regional Shoreline. Recreational uses have been established with some still in the planning process. These recreational uses include picnicking, shoreline fishing, pier uses, visitor center, educational and interpretive facilities, intermodal transportation linkages, park concessions, and special events. The Ferry Point Pier has been rehabilitated and fishing facilities have been established. Interpretive facilities are planned for the Pier recognizing its former use as a terminal for the Transcontinental Railroad. The shoreline area immediately adjacent to the water was made available for public enjoyment and education. Shoreline access has been included in the Bay Trail system and linked to the high use areas in Miller Knox. Maximum public access to the shoreline will include a shoreline trail, loop trails and pier access over the Bay (Personal communication, M. Anderson, 2002).

In addition to the acquisition of the Ferry Point parcels and Pier, the Miller-Knox Regional Shoreline also recently acquired the Brae Property between the park and the Ferry Point parcels. This allowed for the contiguous Miller-Knox property extending through the Ferry Point parcels, bringing the total acreage to approximately 310 acres.

*Oakland Harbor 50-Foot Deepening Project*

Oakland Harbor is located in the city of Oakland, on the eastern shore of central San Francisco Bay, immediately south of the San Francisco-Oakland Bay Bridge. Oakland Harbor is the second largest port on the West Coast and the fifth largest container port in the nation. The project proposes to deepen the federal channels of the Oakland Harbor and Port-maintained berths from –42 feet to depths of –50 feet. Approximately 12.8 million cubic yards of sediment will be dredged for this project and used to create environmental enhancement and wetland habitat at the Middle Harbor Enhancement Area (MHEA), the Hamilton Army Airfield Wetlands Restoration project (HWRP), and the Montezuma Wetlands Restoration project (MWRP).

Two contracts will be completed in 2005, the construction of the MHEA Containment Structure and Phase 3B/C, which will dredge and dispose material from the Outer and Inner Harbors at the MWRP site, and the MHEA site. This phase will deepen the Oakland Harbor to –46-feet. The second phase of construction in the Inner Harbor Turning Basin, Phase 1B, will begin in 2005 and be completed in 2006. After construction on Inner Harbor Phase 1B is completed, a new contract, Phase 3D/E, which will dredge and dispose of material at the HWRP site and the MWRP site, will begin in 2006. This phase will deepen the Oakland Harbor to the authorized project depth of –50-feet.

*Deepening of the Suisun Bay Channel for the Concord Naval Weapons Station*

The Concord Naval Weapons Station is on the southern edge of the Suisun Bay in northern Contra Costa County, between the cities of Martinez and Pittsburgh. The Weapons Station ships munitions around the world. Deepening the channel would allow for more efficient cargo handling, including introducing the use of containerized cargo. Although there is no estimate for total dredge material volume, the sediment is expected to be relatively clean because the channel has been subject to periodic maintenance dredging. The Navy funded reconnaissance-level studies to determine whether or not deepening the Bay from -35 feet to -42 feet MLLW would be feasible in 1998/1999. At that time, the Navy also considered an alternative to construct a new Pier, which would preclude deepening the channel. However, funding did not become available and the Navy is not pursuing either of the projects at this time but could in the future (personal communication, M. Dillabough, 2002)

*New Benicia-Martinez Bridge and Retrofit Project (I-680)*

The California Department of Transportation (Caltrans) is retrofitting the existing bridge and constructing a new bridge across the Carquinez Strait between Benicia and Martinez for traffic on Interstate 680 (I-680). The new bridge is being built east of the existing railroad bridge, which lies east of the existing vehicular bridge. The existing bridge will be converted to one-way traffic. Because of the high volume of vessel traffic that passes through the Carquinez Strait, hydraulic fenders similar to those on the existing I-680 bridge are proposed. In addition to the construction of the new bridge, the project also includes improving highway approaches to the bridge, expansion to four lanes, carpool lane, bicycle and pedestrian path, as well as new toll plaza facilities. Retrofitting began in August 1998 and was completed in 2002. The construction of the new bridge began in fall 2001 and is expected to be completed in spring 2007 (Caltrans District 4 Website, http://www.dot.ca.gov/dist4/benicia/, visited September 12, 2005).

*Richmond-San Rafael Bridge Seismic Retrofit Project*

The bridge is a part of I-580 spanning Richmond (Contra Costa County) on the east across the Bay to Point San Quentin (Marin County) on the west. The approximately 4.5-mile-long bridge will be seismically retrofitted to withstand collapse from a future severe earthquake.

Seismic retrofit construction activities will occur within the same alignment as the existing bridge. During construction, two lanes of traffic will remain open at all times in each direction during peak commute hours and a minimum of one lane in each direction during noncommute hours. Development of seismic retrofit construction strategies on the bridge required separating the bridge into four segments: (1) concrete trestle section, (2) west approach structure, (3) main steel truss superstructure, and (4) east approach structure. A single deck parallel concrete trestle extends from Point San Quentin to the west approach structure. This part of the bridge will be completely replaced along the existing alignment due to severe corrosion of the existing structure.

Construction, which is 90% complete, began in December 2000 and is expected to extend through the middle of 2006 (Caltrans Website: http://www.is.ch2m.net/rsrbridge/ September 2005).

*Point Molate Reuse Project*

Point Molate Naval Fuel Depot (NFD) is located on the San Pablo Peninsula, approximately 1.5 miles north of the Richmond-San Rafael Bridge in the city of Richmond, California. NFD Point Molate covers approximately 412 acres in the Potrero Hills along the northeastern shore of San Francisco Bay. The San Pablo Peninsula is the land mass between San Pablo Bay and San Francisco Bay. The facility occupies approximately 1.6 miles of shoreline and its property extends into adjacent hillsides up to the top of the San Pablo ridge. Topography ranges from flat, filled areas (reclaimed tidal areas) near the Bay to steep, dissected slopes of nearly 500 feet in elevation. The facility is bordered to the north, south, and east by the Chevron Richmond Refinery and to the west by San Francisco Bay. In 1995, Point Molate was listed for closure and disposition under the Defense Base Closure and Realignment Act (BRAC) of 1990. The facility operationally closed on September 30, 1998.

In November 2004, the Guidiville Band of Pomo Indians (Tribe), and Upstream Point Molate LLC, which is working with Harrah's and the Tribe on a hotel-casino resort, entered into an agreement with the city of Richmond (City) to develop the site.

The development project will reflect the goals and objectives of the Point Molate Base Reuse Plan by including a range of hospitality, retail, entertainment and recreation uses, while providing job and revenue generation for the City. The project will include a balance of development and open space on the property. The project will feature first class destination resort and gaming facilities, together with approximately 150,000 square feet of indoor related showroom entertainment and conference space, 1,100 hotel rooms and approximately 300,000 square feet of retail space, together with public-serving uses, park and open space and pedestrian, bicycle and vehicular access and circulation. Retail uses will be organized into a pedestrian village inland from and parallel to the shoreline, leaving a generous park and Bay Trail alignment on the Bay's edge. In concert with the Bay Trail, the plan provides for a ferry terminal at the Point Molate pier, with clustered public facilities and amenities to provide the necessary shoreside facilities and enhance the waterfront experience. Development along the shoreline will be clustered in designated areas, leaving the majority of the shoreline in a natural state. The City Planning Commission and the Bureau of Indian Affairs (BIA) held a Scoping Meeting March 31, 2005, to discuss the development.

*San Francisco Bay Ferry Network*

As provided by Assembly Bill 428, the San Francisco Bay Area Water Transit Authority (WTA) is currently considering adoption of a San Francisco Bay Area water transit implementation and operations plan and will operate a comprehensive Bay Area regional public transit system. A Draft EIR was released in August 2002

(URS Corporation 2002a). Further planning, design and environmental studies for first priority services and project in partnership with local communities has begun. The first new ferry service dates are tentatively scheduled to occur between 2008 and 2010 (WTA website, www.watertransit.org 2005).

The WTA is considering expansion of the Bay's ferry service. Expansion of the ferry service may include several new routes. A route from Redwood City to Mission Bay and the Ferry Building in San Francisco would operate every 30 minutes using 150-passenger, 30-knot vessels. A new service from San Leandro to Redwood City would operate every 30 minutes and would connect the San Leandro marina with the Port of Redwood City using 150 passenger, 35-knot vessels. San Francisco Airport would be connected to downtown San Francisco, Moffett Field, and Oakland International Airport at Moffett Field. This service would require dredging of Moffett Field and would operate every 20 minutes. A link would be established from downtown San Francisco to Moffett Field or the Port of Redwood City with downtown San Francisco and connecting services to the Oakland Airport for vessels dedicated for airport cargo only. Oyster Point Marina in South San Francisco would connect to the San Francisco Ferry Building with service every 15 minutes. By 2025, depending on the alternative selected, ferry trips crossing the Bay could exceed 1.2 million trips annually.

*Mare Island Reuse*

Mare Island is located on the western edge of the city of Vallejo in southwestern Solano County. Mare Island is approximately 3.5 miles long and one mile wide. It is approximately 5,460 acres of which 1,650 acres are developed uplands. Tidal and non-tidal wetlands comprise the remaining acreage. The Island is relatively flat and ranges in elevation from sea level to 285 feet above sea level in the southern regional park area. Mare Island has approximately 960 buildings that comprise about 10.5 million square feet of industrial, office, residential, commercial, and recreational facilities.

The Mare Island naval facility was transferred to the city of Vallejo in May 2002. Conversion of the Mare Island Naval Shipyard and related properties from military to civilian use continues under the direction of the city's economic development division (City of Vallejo Website: http://www.ci.vallejo.ca.us/GovSite/ September 2005).

### 3.4.3 Regional Characteristics of Crude/Product Transportation in Bay and Along Coastal Shipping Lanes off Northern California

Many types of marine vessels call at terminals in the San Francisco Bay Area, including passenger vessels, cargo vessels, tankers, tow/tug vessels, dry cargo barges, and tank barges. Several sources track vessel transits into the Bay. These sources are generally limited to inbound/arrival information from outside to inside the Bay and do not include vessel transit information for transits originating in the Bay.

Table 3.4-1 presents information on inbound vessels transits only through the Golden Gate during 2003 (Corps 2003). The number of outbound transits would essentially be the same. With the exception of San Francisco Harbor, these numbers do not reflect vessel traffic transits originating in the Bay. Excluding San Francisco Harbor, 31,184 vessels called at terminals in the San Francisco Bay Area in 2003. Of these, 5,807 vessels called at Richmond Harbor, which includes the general area of the Long Wharf.

**Table 3.4-1**
**Inbound Vessel Traffic in San Francisco Bay (2003)**

| Location | Type of Vessel | | | | | Total Number of Vessels |
|---|---|---|---|---|---|---|
| | Passenger & Cargo | Tanker | Tow or Tug | Dry Cargo Barge | Tank Barge | |
| San Francisco Bay Entrance | 2,455 | 730 | 424 | 16 | 306 | 3,931 |
| San Francisco Harbor | 34,230[1] | 16 | 542 | 161 | 67 | 35,016[1] |
| Redwood City Harbor | 29 | - | 110 | 8 | 0 | 147 |
| Oakland Harbor | 9,218 | 3 | 1401 | 262 | 352 | 11,236 |
| Richmond Harbor | 58 | 378 | 3586 | 390 | 1395 | 5,807 |
| San Pablo Bay And Mare Island Strait | 4,029 | 430 | 1510 | 576 | 417 | 6,962 |
| Carquinez Strait | 254 | 416 | 1602 | 511 | 318 | 3,101 |
| **Totals** | **16,043[2]** | **1,957** | **8,633** | **1,763** | **2,788** | **31,184[2]** |

**Source:**
**Corps 2003. Waterborne Commerce of the United States Calendar Year 2003 Part 4-Waterways and Harbors Pacific Coast, Alaska, and Hawaii.**
**Note:**
**[1] Number of passenger and cargo vessels in Harbor reflect vessel traffic generated within the Bay, thus numbers shown exceed the number of vessels at the San Francisco Bay Entrance.**
**[2] Total excludes San Francisco Harbor passenger and cargo.**

The Marine Exchange of the San Francisco Bay Region also tracks ship movements. Inbound ships by vessel type. Over a 20-year period, the overall number of Golden Gate ship traffic arrivals has remained fairly constant, ranging from a low of 2,897 arrivals in 1997 to a high of 3,779 arrivals in 1984. The mix of foreign to U.S. vessels has been increasing over the years and now ranges from approximately 35 to 40 percent U.S. to 65 to 60 percent foreign.

"Shifts" included in Table 3.4-2 are those vessels that had movements from one part of the Bay to another. Shifts have remained fairly constant over the past 4-year period 2001-2005, in the range of approximately 5,000 vessel movements. Of six anchorages located in the Bay, Anchorage 9, located south of the Bay Bridge between San Francisco and Oakland had the majority of arrivals at 710 of the total of 971 arrivals.

**Table 3.4-2**
**Golden Gate Ship Traffic**
**Destination of Golden Gate Arrivals 2001, Including Shifts**

| Destination | Total |
|---|---|
| Anchorages (6) | 971 |
| Oakland | 1,856 |
| North Bay Area | 663 |
| Antioch | 10 |
| Benicia | 187 |
| Concord NWS | 2 |
| Crocket Sugar | 25 |
| Martinez | 254 |
| Pittsburg | 47 |
| San Pablo Bay | 137 |
| Redwood City | 35 |
| Richmond | 624 |
| Sacramento | 81 |
| San Francisco | 202 |
| Stockton | 143 |
| **Total** | **5,237** |
| **Source: Marine Exchange, 2001.** | |

Long Wharf bound tankers occasionally transfer oil from one vessel to another (lighter) at Anchorage 9 which reduces the draft of the vessel prior to travel to its destination. Of the 624 arrivals to the Richmond area, 390 were to the Long Wharf. In the future, during the lease term, Chevron bound vessels may increase lightering activity.

The CSLC Marine Facilities Division in Hercules also tracks ship and barge calls to those marine terminals for which they have jurisdiction. Table 3.4-3 presents those numbers for 2004.

Vessels entering and leaving the Golden Gate entrance to San Francisco Bay do so through the Traffic Separation Scheme which consists of a circular Precautionary Area with three traffic lanes (northern, main or western, and southern) exiting from the Precautionary Area. A detailed description of the regulated navigation areas is presented in Section 4.1 in the Operational Safety/Risk baseline conditions discussion.

**Table 3.4-3**
**Vessel Calls to Marine Terminals in the San Francisco Bay During 2004**

| Marine Terminal | Vessels | Barges | Total |
|---|---|---|---|
| Shell Oil, Martinez | 55 | 122 | 177 |
| G.P. Resources | 0 | 6 | 6 |
| Tesoro Amorco | 88 | 0 | 88 |
| Tesoro Avon | 41 | 87 | 128 |
| ConcocoPhillips, Rodeo | 26 | 232 | 258 |
| Shore, Martinez | 50 | 143 | 193 |
| Shore, Crockett | 24 | 31 | 55 |
| Chevron Long Wharf, Richmond | 368 | 398 | 770 |
| BP West Coast, Richmond | 1 | 22 | 23 |
| Shore, Richmond | 3 | 343 | 346 |
| BP Lubricants | 0 | 12 | 12 |
| Kinder Morgan, Richmond | 18 | 0 | 18 |
| IMTT, Richmond | 26 | 451 | 604* |
| ConcocoPhillips, Richmond | 0 | 31 | 31 |
| Valero, Benicia | 96 | 69 | 164 |
| **Total all Terminals** | 796 | 1,947 | 2,873 |
| **Total include 127 tugs not included in the vessels or barges categories**<br>**Source: CSLC, Marine Facilities Division, 2005.** | | | |

Table 3.4-4 presents information on tanker origins and destinations and travel distances offshore of the California coastline when calling at terminals in the San Francisco Bay. This data is based on a USCG and National Oceanic and Atmospheric Administration (NOAA) special report to Congress and confirmed by recent data from the Marine Exchange. Vessels carrying crude are separated from vessels carrying products because product carriers sometimes transit closer to shore.

Imported cargo and associated vessel calls are expected to triple from 1995 to 2020 (LTMS 1998). Numbers taken from the Seaport Plan (BCDC and MTC 1997) show a projected increase from approximately 15 million metric tons to 44 million metric tons during this timeframe. The number of vessels is hard to estimate, as in the future, larger vessels will carry greater quantities of cargo than at present. The projected estimates reflect general cargo ports and terminals; commodities handled at proprietary terminals (including the Long Wharf) are not included in the projections.

## Table 3.4-4
## Tanker Original/Destination to/from San Francisco Bay and Distance Traveled from Coast

| Origin | Destination | Typical Distance From Coast (Miles) |
|---|---|---|
| Alaska | SF Bay | 50+ |
| Canada | SF Bay | 25+ |
| Oregon and Washington | SF Bay | 25+ |
| Asia and Hawaii | SF Bay | NA |
| Los Angeles | SF Bay | 25+ |
| Mexico, Panama, and South America | SF Bay | 10+ |
| SF Bay | Oregon and Washington | 25+ |
| SF Bay | Humboldt Bay | 25+ |
| SF Bay | Asia and Hawaii | NA |
| SF Bay | Port San Luis | 10+ |
| SF Bay | Los Angeles | 50+ ANS crude<br>25+ other crude and products |
| SF Bay | Mexico, Panama, and South America | 25+ |

**Sources: USCG and NOAA, undated. Report to Congress on Regulating Vessel Traffic in the Monterey Bay National Marine Sanctuary as Required by Public Laws 102-368 and 102-587. San Francisco Bay Region Marine Exchange, 2002.**